

## CLAIMS

What is claimed is:

- 1        1. A method for reducing spurious emissions in an amplified signal, the method comprising the  
2 steps of:
  - 3        (a) amplifying a first copy of an input signal by a first amplifier sub-system;
  - 4        (b) amplifying one or more other copies of the input signal by one or more other amplifier sub-  
5 systems;
  - 6        (c) combining outputs from the first amplifier sub-system and the one or more other amplifier sub-  
7 systems to generate a combined amplified output signal, wherein the first amplifier sub-system:
    - 8            (1) applies pre-distortion to the first copy of the input signal to generate a pre-distorted first copy  
9 of the input signal, wherein the pre-distortion of the first copy of the input signal is based on the  
10 combined amplified output signal; and
    - 11            (2) amplifies the pre-distorted first copy of the input signal to generate the output from the first  
12 amplifier sub-system.
- 1        2. The invention of claim 1, wherein a portion of the combined amplified output signal is tapped off  
2 and fed back to the first amplifier sub-system for use in pre-distorting the first copy of the input signal.
- 1        3. The invention of claim 1, wherein each other amplifier sub-system:
  - 2            (1) applies pre-distortion to its copy of the input signal to generate a pre-distorted copy of the input  
3 signal, wherein the pre-distortion of its copy of the input signal is based on only the output from said  
4 each other amplifier sub-system; and
  - 5            (2) amplifies the pre-distorted copy of the input signal to generate the output from said each other  
6 amplifier sub-system.
- 1        4. The invention of claim 1, wherein each other amplifier sub-system amplifies its copy of the input  
2 signal without performing any pre-distortion.
- 1        5. The invention of claim 1, wherein:
  - 2            during initial operations, each amplifier sub-system pre-distorts its copy of the input signal based on  
3 only the output from said each amplifier sub-system; and
  - 4            after the initial operations, the first sub-system pre-distorts its copy of the input signal based on the  
5 combined amplified output signal.

1        6. The invention of claim 1, further comprising performing pre-distortion by one of the one or more  
2 other amplifier sub-systems based on the combined amplified output signal in case of failure of the pre-  
3 distortion processing of the first amplifier sub-system.

1        7. An apparatus comprising:  
2        a first amplifier sub-system adapted to amplify a first copy of an input signal;  
3        one or more other amplifier sub-systems adapted to amplify one or more other copies of the input  
4 signal;  
5        a combiner adapted to combine outputs from the first amplifier sub-system and the one or more other  
6 amplifier sub-systems to generate a combined amplified output signal, wherein the first amplifier sub-  
7 system comprises:  
8        (1) a pre-distortion block adapted to apply pre-distortion to the first copy of the input signal to  
9 generate a pre-distorted first copy of the input signal, wherein the pre-distortion of the first copy of the  
10 input signal is based on the combined amplified output signal; and  
11        (2) a power amplifier adapted to amplify the pre-distorted first copy of the input signal to  
12 generate the output from the first amplifier sub-system.

1        8. The invention of claim 7, wherein a portion of the combined amplified output signal is tapped off  
2 and fed back to the first amplifier sub-system for use in pre-distorting the first copy of the input signal.

1        9. The invention of claim 7, wherein each other amplifier sub-system comprises:  
2        (1) a pre-distortion block adapted to apply pre-distortion to its copy of the input signal to generate a  
3 pre-distorted copy of the input signal, wherein the pre-distortion of its copy of the input signal is based  
4 on only the output from said each other amplifier sub-system; and  
5        (2) a power amplifier adapted to amplify the pre-distorted copy of the input signal to generate the  
6 output from said each other amplifier sub-system.

1        10. The invention of claim 7, wherein each other amplifier sub-system is adapted to amplify its copy  
2 of the input signal without performing any pre-distortion.

1        11. The invention of claim 7, wherein:  
2        during initial operations, each amplifier sub-system is adapted to pre-distort its copy of the input  
3 signal based on only the output from said each amplifier sub-system; and

4 after the initial operations, the first sub-system is adapted to pre-distort its copy of the input signal  
5 based on the combined amplified output signal.

1 12. The invention of claim 7, wherein:  
2 the one or more other amplifier sub-systems comprise a second amplifier sub-system adapted to  
3 amplify a second copy of the input signal; and  
4 the combiner is adapted to combine the outputs from the first and second amplifier sub-systems to  
5 generate the combined amplified output signal.

1 13. The invention of claim 12, further comprising:  
2 a first splitter adapted to split the input signal into the first and second copies of the input signal;  
3 a first tap adapted to tap off a portion of the combined amplified output signal; and  
4 a second splitter adapted to split the portion of the combined amplified output signal into two copies,  
5 wherein each copy of the portion of the combined amplified output signal is fed back to a different one of  
6 the first and second amplifier sub-systems.

1 14. The invention of claim 13, wherein each amplifier sub-system further comprises a switch adapted  
2 to select either the corresponding copy of the portion of the combined amplified output signal or the  
3 output from said each amplifier sub-system for use in pre-distorting its copy of the input signal.

1 15. The invention of claim 7, wherein at least one of the one or more other amplifier sub-systems is  
2 adapted to perform pre-distortion based on the combined amplified output signal to provide a level of  
3 redundancy in case of failure of the pre-distortion processing of the first amplifier sub-system.